THE DIRECTOR OF
CENTRAL INTELLIGENCE

[redacted]

National Intelligence Council

NIC #05064-84
4 September 1984

NOTE FOR: Director of Central Intelligence

VIA: Vice Chairman, National Intelligence Council

FROM: Maurice C. Ernst
NIO for Economics

SUBJECT: The Wall Street Journal Article, 4 September 1984

Worth reading if you have not already done so.

Maurice C. Ernst

Attachment,
As stated

[redacted]

[redacted]

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DCI/NIC/NIO/Econ:M.Ernst:bha(4 Sept 84) STAT

Dist:
  Orig: DCI (w/att)
    1 - DDCI (w/att)
    1 - DCI/SA/IA (w/att)
    1 - ER (w/o att)
    1 - DDI Reg (w/o att)
    1 - VC/NIC (w/att)
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Sanitized Copy Approved for Release 2010/05/06 : CIA-RDP87T00759R000100200041-0

THE WALL STREET J NAL
Tuesday, September 4, 1984

50 CENTS

The Cutting Edge

Making Machine Tools Increasingly Requires Ties to Foreign Firms

As Competition Warms Up, U.S. Producers Get Parts And Technology Abroad

A Glimpse Into the Future?

By RALPH E. WINTER
Staff Reporter of THE WALL STREET JOURNAL

CINCINNATI—When Richard K. LeBlond began making metalworking lathes here in 1887, he was intrigued with Japan, then a remote place. Behind his new white factory with red-brick trim, he built a little stone pagoda and a reflecting pond.

Today, Daniel W. LeBlond, the chairman of the company his grandfather started, is even more involved with the Orient. In 1981, a Japanese machine-tool producer, Makino Milling Machine Ltd., bought a 51% stake, and the LeBlond company now is called LeBlond Makino Machine Tool Co. LeBlond Makino still makes lathes, but it also assembles Makino-designed machining centers that use many Japanese parts. In addition, LeBlond Makino has a plant in Singapore and this month will start selling highly automated lathes built by a West German concern.

The affiliation with Makino, Mr. LeBlond says, is providing "access to a tremendous range of products that we would have no way in the world of developing ourselves, either from a technology or financial standpoint.

International Flavor

Like LeBlond Makino, the entire machine-tool industry is becoming truly international. To an unusual degree, companies buy, sell and share technology with scant attention to national boundaries. At the huge International Machine Tool Show in Chicago this week, U.S. companies are displaying many systems containing foreign-made machines with U.S.-made electronic controls.

And while the U.S. industry clamors for import quotas, many producers expect little help from Washington and have quietly decided to link up with foreign competitors. That group even includes Houdaille Industries Inc., of Fort Lauderdale, Fla.; after an unsuccessful two-year effort to get the Reagan administration to deny investment tax credits to buyers of Japanese machine tools, Houdaille is negotiating with a Japanese producer about a possible joint venture to produce machining centers for sale in the U.S.

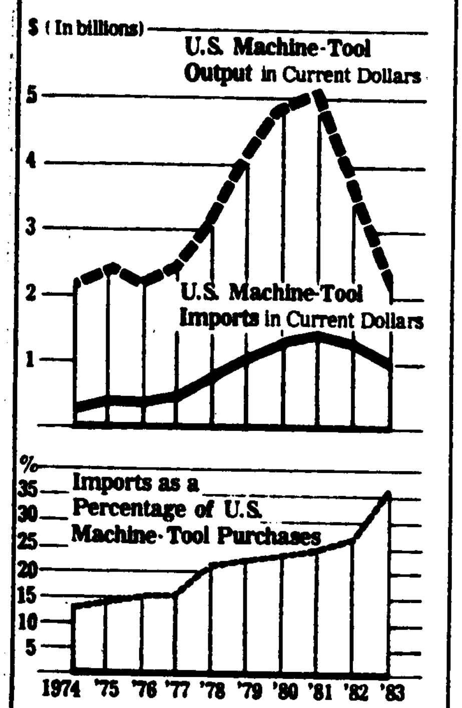
So far this year, ported machines have seized 42% of the machine-tool market, up from 13% a decade ago, according to the National Machine Tool Builders' Association. In addition, Japanese, European and Canadian companies make machines in the U.S. Moreover, American machine-tool makers aren't faring as well as they once did in foreign markets, though they still export more than 10% of their U.S. output. And some have foreign plants that compete in overseas markets.

Small but Crucial

For many machines, says Edson I. Gaylord, the chairman and president of Ingersoll Milling Machine Co. of Rockford, Ill., "whether the buyer is in the U.S., Europe, a Third World country or the Far East, the same suppliers are in the lobby seeking the order."

The U.S. machine-tool industry is relatively small; even in a good year, its sales

Machine-Tool Trends



Source: National Machine Tool Builders' Association

seldom exceed $5 billion. But its evolution into an international business is important. Machine tools—machines that make machines—are used to shape most metal parts, ranging from engine blocks to oil-well bits. U.S. manufacturers of countless products depend on machine-tool makers to supply equipment that, they hope, will give them a competitive edge in world markets. And they will be seriously handicapped if foreign manufacturers get superior technology first.

The difficulties of American machine-tool builders illustrate what other U.S. industries will face as international competition grows. An intense Japanese push into the machine-tool export market hit the American producers just before they also were clobbered by the latest recession. Sales of U.S.-made machine tools plunged 65%, and most producers fell deeply into the red. The industry is made up mainly of small companies, and

Please Turn to Page 25, Column 1

The Cutting E^ge: Success in Maki g Machine Tools Increasingly Requires Foreign Parts and Technology

Continued From First Page

about 25% of them went out of business, the national association says.

Some big players want out, too. Allied Corp. recently sold the machine-tool operations that it acquired when it bought Bendix Corp., and Textron Inc. seems willing to sell its machine-tool business. Some producers have sold out to foreign companies, and others are up for sale.

Much Optimism

The surviving companies think that the industry will emerge lean but healthy if another recession doesn't hit next year. "By God, if we put our minds to it, we can do it," says Clifford R. Meyer, the president of Cincinnati Milacron Inc., the leading U.S. producer. However, sales of U.S.-made machine tools are still running at less than half the 1980 level.

"A further shakeout" is predicted by Frank W. Jones, the chief executive officer of Giddings & Lewis Inc., an Amca International Corp. unit based in Fond du Lac, Wis. "The survivors," he adds, "will be the companies that can offer a technologically competitive product, high quality, timely delivery, good parts and service, and competitive price."

To do that, U.S. machine-tool makers are spending heavily on lasers, computer software and other advanced technology to leapfrog overseas competitors. For instance, Acme-Cleveland Corp. recently shipped to General Electric Co.'s aircraft-engine plant near Cincinnati a machining center that cuts with a laser instead of rotating metal blades.

U.S. companies are pushing especially hard to develop computer-controlled groups of machines that can automatically produce a number of different parts. Such a flexible manufacturing system (FMS), which often includes robots to load machines and remove finished parts, will be central to the "factory of the future" because its versatility permits users to cut inventories of materials and finished parts. Less sophisticated, lower-cost groupings called manufacturing cells will do the job for companies that can't afford a $5 million to $20 million FMS.

While fighting off foreign rivals, U.S. machine-tool makers also are reaching out for foreign technology. Most import low-cost parts and some complete machines, and some have entered licensing agreements to assemble and market foreign-designed machines. Some are licensing a foreign producer to make U.S.-designed machines, and then they import some of the equipment into this country.

Within a year, for example, LeBlond Makino won't sell any U.S., Japanese or German machines. All will be "mongrels."

The LeBlond Makino machining centers assembled here will have half U.S. and half Japanese parts and labor, Mr. LeBlond says. The German-designed lathes will be put together here, using some locally made bulky parts and electronic controls. The original LeBlond lathes will have more foreign-made parts. The Singapore plant is making lathes designed by LeBlond here but containing parts made in the U.S., Japan and Singapore. It also is making a new, small machining center designed in Japan by Makino and containing Japanese parts.

To try to deal with a serious price gap between U.S. and Japanese machines, U.S. producers are slashing costs—unlike their approach in the 1970s, when their first response to rising costs often was to increase prices. Huge old factories in big cities are closing; they are being replaced by smaller, more efficient plants in smaller cities, where wages are lower.

Productivity Drive

Cross & Trecker Corp., of Bloomfield Hills, Mich., cut hourly labor costs 40% when it moved some production to Georgetown, Ky., from Milwaukee. As a bonus, the computer-controlled equipment in the new plant increased productivity 40%, says Richard T. Lindgren, the chief executive. The company's goal, he adds, is annual sales of $200,000 per employee, up from a peak of $95,000 per employee before the recession.

"Productivity of secretaries, salesmen, engineers and executives must improve, along with production workers'," says Mr. Jones of Giddings & Lewis. His company is investing in computer-aided design, computerized management-information systems, word processors and a $3 million automated warehouse, in addition to new machines in its factories.

Like many other U.S. industries, American machine-tool makers dominated world markets for two decades following World War II. German and Japanese plants were in ruins, and U.S. technology was far ahead of the rest of the world's. U.S. machine-tool exports 20 years ago were more than four times imports. And the machines that were imported were mainly very simple and cheap, or they were special-purpose machines from Europe that didn't affect the principal markets.

Since 1980, however, U.S. machine-tool imports have been more than double exports. Japanese producers, in particular, are pouring equipment into the U.S. When General Motors Corp. last May opened bids for 21 sophisticated new presses worth well over $100 million, Japanese producers were low bidders on all of them. To retain multiple sources of supply, GM placed four orders with Danly Machine Corp. of Chicago and two with German producers, but the Japanese got most of the order.

Seeking Protection

Like manufacturers of hundreds of other products ranging from bicycles to steel, U.S. machine-tool builders want government protection. Their national association is seeking quotas that would limit foreign producers to 17.5% of the U.S. market for the next five years. The association argues that imports are jeopardizing an industry essential to national defense. So far, the Reagan administration hasn't ruled on the petition, but some companies concede that they don't expect much help.

As with some other American industries, there is debate about how much of the machine-tool makers' problems arise from failure to stay up with the latest technology. A 1983 study by the National Research Council said: "The American industry is beginning to lag behind in technological leadership to the Japanese and West German industries, particularly in the area of machine software and control units. American machine-tool builders are significantly behind in the organization and technology utilized in their production processes."

Industry executives deny that their machines are behind the times. In fact, says Cross & Trecker's Mr. Lindgren, "technology is really moving from the U.S. to Japan rather than vice versa."

However, even industry executives concede that U.S. producers have lost the long technological lead that previously allowed them to sell machine tools around the world at prices far higher than those of foreign competitors. And some agree with the council's allegation that U.S. producers aren't doing as well as the Japanese ... sing in their own plants the best production equipment and methods.

One answer is to tap that efficient Japanese industry. Cross & Trecker recently launched what Mr. Lindgren calls "the better-best marketing strategy." He says, "There probably isn't any way a North American producer is going to be able to compete with the Japanese on the basis of price." Therefore, on Sept. 12, the company will introduce a machining center made by a Japanese producer but fitted with Cross & Trecker controls, "the first in a complete line to be made in Japan," he says. Low-priced lathes already are being produced by a Japanese company 50%-owned by Cross & Trecker. Cross & Trecker will continue to offer its U.S.-made machines, which cost about 30% more but cut metal faster and have more sophisticated oontrols, Mr. Lindgren says.

"The opportunity to offer a choice will increase our credibility with the customer," and will help to sell U.S.-made machines, Mr. Lindgren says. "If you don't have the low-price merchandise on your wagon, the customer always thinks you are trying to sell him up to get him into your merchandise."

Other companies say they are holding off until they see whether import quotas are imposed. If the petition is denied, they also will import more machines, often from licensees or jointly owned companies.

Cincinnati Milacron is counting heavily on technology. For instance, the company is substituting a new synthetic material called epoxy granite to replace some large cast-iron parts on its grinding machines. The material is superior because it vibrates less and thus allows more precise grinding, Mr. Meyer says. "And we can pour it today and have it on the assembly line tomorrow," he adds. With iron castings, he explains, at least 16 weeks elapse between the time of order and use; so, the new material greatly reduces inventory.

Leading machine-tool makers say their fortunes will improve as more manufacturers start buying flexible manufacturing systems. "With those systems, the design engineer and manufacturing engineer of the customer and the machine-tool-company sales engineer have to be in bed together," Cross & Trecker's Mr. Lindgren says. Products have to be designed carefully for efficient production with an FMS, he says, and the system must be tailored for the products. "Then, as often happens, product designs are changed right up to the time of introduction, and the FMS has to be modified," he adds. All that will be difficult for the Japanese, he says, mostly because of distance and language problems.

Most systems probably will contain foreign-made machines, however, very likely including some of the robots that handle materials and parts. But U.S. companies expect to do the engineering, supply the controls and build many of the machine tools. Mr. Meyer also expects good service business because manufacturers won't risk having a $20 million FMS break down.

So far, however, the FMS market is less than 10% of the machine-tool business. And the systems won't help U.S. companies as much in the other side of international competition—selling in foreign markets.

There aren't any simple answers to that problem. Ex-Cell-O Corp., of Troy, Mich., says it can export only the most sophisticated machines. The company is counting mainly on licensing agreements and its German subsidiary to reach foreign markets. Ex-Cell-O has licensees in Brazil, India, Spain and other countries. It recently signed licensing agreements in China and is looking at possibilities in Singapore, South Korea and other countries.

Cross & Trecker has another plan. "The Japanese machine-tool industry is building capacity to satisfy 150% of world requirements for machine tools," Mr. Lindgren says. When the next downturn comes, he adds, "a number of those outfits will go through the proverbial wringer." He hopes to buy a Japanese company cheap.